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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**



Application Number: 09/927,281
Filing Date: August 10, 2001
Appellant(s): GOLOVASHCHENKO ET AL.

Thomas E. Donohue
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 05 June 06 appealing from the Office action mailed 03 March 04.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| 3,167,985 | Madsen | May 1961 |
| 4,660,401 | Kohama et al. | April 1987 |
| 5,820,999 | Li et al. | October 1998 |
| 6,370,931 | Bennet | April 2002 |

Hambli et al. "Finite element modeling of the sheet metal blanking operations with experimental verification" Journal of Materials Processing Technology, 25 January 2000

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

**Ground 1 - 102b - Kohama**

Claims 1-4,12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Kohama, who shows an apparatus with all of the recited limitations including a steady blade (281), a clamping pad (6,7), a moving blade (51) and a support element (27) on an elastic pad (46). Kohama is silent on what radius the cutting edge of the movable blade has. However, those of ordinary skill in the art know that all metal

cutting edges have a radius, simply because it is not practical to get a perfectly sharp cutting edge.

As noted in MPEP 2131.01(C), it is acceptable to introduce a secondary reference into a 35 USC 102 rejection for the purpose of showing that something is inherent in the base references. In January of 2000, the Journal of Materials Processing Technology accepted an article by Ridha Hambli et al. titled "*Finite element modeling of sheet metal blanking operations with experimental verification*" " (hereafter "the Hambli article". In this article, Hambli noted that having a large radius on the cutting edge, such as 0.2mm, causes burrs to form such as in figure 10b, and that new dies, with a cutting edge radius of .01mm make better cuts as seen in figure 10a. Since even new dies have a cutting edge radius, it can be seen that Kohama's dies would have a cutting edge radius, and that said new die cutting edge radius would yield a cut that is "adapted to reduce defects" as seen in Hambli's figure 10a.

**Ground 2 - 102b - Madsen**

Claims 1-3,12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Madsen, who shows an apparatus with most of the recited limitations including a steady blade (14), a clamping pad (28), a moving blade (26) and a support element (30). Madsen is silent on what radius the cutting edge of the movable blade has. However, those of ordinary skill in the art know that all metal cutting edges have a radius, simply because it is impractical to get a perfectly sharp cutting edge.

As noted in MPEP 2131.01(C), it is acceptable to introduce a secondary reference into a 35 USC 102 rejection for the purpose of showing that something is inherent in the base references. The Hambli article noted that having a large radius on the cutting edge, such as 0.2mm, causes burrs to form such as in figure 10b, and that new dies, with a cutting edge radius of .01mm make better cuts as seen in figure 10a. Since even new dies have a cutting edge radius, it can be seen that Madsen's dies would have a cutting edge radius, and that said new die cutting edge radius would yield a cut that is "adapted to reduce defects" as seen in Hambli's figure 10a.

**Ground 3 - 103 – Kohama in view of Hambli**

Claims 1-4,12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohama in view of the Hambli article.

Kohama shows an apparatus with most of the recited limitations as set forth above. If, for some reason, it is interpreted that Kohama's cutting edge is not rounded, then it is noted that the Hambli article sets forth that having an edge radius of 0.01mm produces a reduced-defect cut edge, as seen in Hambli's figure 10a. It would have been obvious to one of ordinary skill in the art to have modified Kohama by making the cutting edge have a radius of 0.01mm, as suggested by Hambli, in order to obtain a reduced-defect edge.

**Ground 4 - 103 – Madsen in view of Hambli**

Claims 1-3,12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madsen in view of the Hambli article.

Madsen shows an apparatus with most of the recited limitations as set forth above. If, for some reason, it is interpreted that Madsen's cutting edge is not rounded, then it is noted that the Hambli article sets forth that having an edge radius of 0.01mm produces a reduced-defect cut edge, as seen in Hambli's figure 10a. It would have been obvious to one of ordinary skill in the art to have modified Madsen by making the cutting edge have a radius of 0.01mm, as suggested by Hambli, in order to obtain a reduced-defect edge.

**Ground 5 - 103 – Kohama in view of Bennett**

Claims 1-4,12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohama in view of Bennet.

Kohama shows an apparatus with most of the recited limitations as set forth above. If, for some reason, it is interpreted that Kohama's cutting edge is not rounded, then it is noted that the Bennet teaches rounding the cutting edges as seen in figures 3-9 and discussed on lines 40-42 of column 8. Bennet states that *"the provision of a radiused or rounding on the operating edges of the die 1 is crucial to the provision of a smooth edged stamping.* It would have been obvious to one of ordinary skill in the art to have modified Kohama by making the cutting edge have a certain radius, as suggested

by Bennet, in order to perform smooth edged stamping. Examiner notes that the term "stamping" as employed here by Bennet means "cutting".

**Ground 6 - 103 – Madsen in view of Bennett**

Claims 1-3,12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madsen in view of Bennet.

Madsen shows an apparatus with most of the recited limitations as set forth above. If, for some reason, it is interpreted that Madsen's cutting edge is not rounded, then it is noted that the Bennet teaches rounding the cutting edges as seen in figures 3-9 and discussed on lines 40-42 of column 8. Bennet states that *"the provision of a radiused or rounding on the operating edges of the die 1 is crucial to the provision of a smooth edged stamping.* It would have been obvious to one of ordinary skill in the art to have modified Madsen by making the cutting edge have a certain radius, as suggested by Bennet, in order to perform smooth edged stamping.

**Ground 7 - 103 – Kohama in view of Li**

Claims 1-4,12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohama in view of Li et al.

Kohama shows an apparatus with most of the recited limitations as set forth above. If, for some reason, it is interpreted that Kohama's cutting edge is not rounded, then it is noted that Li shows that it is well known for the movable blade to be rounded to a radius (see figure 4) when cutting aluminum perpendicularly (see table 10, material

6022-T4 at 20%-25% clearance). It would have been obvious to one of ordinary skill in the art to have modified Kohama by making the cutting edge of the movable blade rounded, as taught by Li, in order to minimize the creation of slivers and burrs when cutting material 6022-T4 (an aluminum alloy).

**Ground 8 - 103 – Madsen in view of Li**

Claims 1-3,12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madsen in view of Li et al.

Madsen shows an apparatus with most of the recited limitations as set forth above. If, for some reason, it is interpreted that Madsen's cutting edge is not rounded, then it is noted that Li shows that it is well known for the movable blade to be rounded to a radius (see figure 4) when cutting aluminum perpendicularly (see table 10, material 6022-T4 at 20%-25% clearance). It would have been obvious to one of ordinary skill in the art to have modified Madsen by making the cutting edge of the movable blade rounded, as taught by Li, in order to minimize the creation of slivers and burrs when cutting material 6022-T4 (an aluminum alloy).

**(10) Response to Argument**

**Ground 1 - 102b - Kohama**

**Claim 1**

Appellant argues that the term "radius" means something significantly more than 0.01mm, and Appellant has made clear that he would like the Examiner to import from

the specification into the claims the limitation that the radius is 0.1mm or larger. However, while the Examiner is permitted to utilize Appellant's meaning of a term (e.g. radius means rounded), Examiner is NOT permitted to import details (e.g. 0.1mm) that are not recited in the claims.

In regards to the claimed phrase "radius...adapted to reduce defects", Examiner notes that the intrinsic radius of a shear blade (at least 0.01mm) produces optimal cut edges, as seen in Hambli's figure 10a, and this is intrinsically "adapted to reduce defects", especially when compared to blades having large radiuses (figure 10b).

Alltho not argued by Appellant, the discrepancy between Hambli's optimal radius (0.01mm) and Appellant's optimal radius (>0.1mm) is that Appellant and Hambli are cutting different materials. Appellant is largely concerned (but not limited to) cutting aluminum alloys, whereas Hambli appears to cutting harder materials (probably steel). However, nowhere in the claims is aluminum mentioned. If the claim said "radius...adapted to reduce defects in an aluminum blank" the rejection would have been quite different. Similar to the above situation, Examiner is not permitted to import the detail of "aluminum" into the claim. In this regards, Examiner's strategy is best stated by Appellant himself, who in the last paragraph of his specification, states *"While particular embodiments of the invention have been shown and described, numerous variations and alternative embodiments will occur to those skilled in the art. Accordingly, it is intended that the invention be limited only in terms of the appended claims"*. As suggested by Appellant himself, Examiner is only giving weight to terms that are

actually in the claims, and Examiner is not giving weight to details (0.1mm, aluminum) that are not in the claims.

Appellant argues that Kohama is not a "trimming apparatus" nor a "trimming method". However, Kohama most certainly shows a device that can trim and a method of trimming. As stated by Appellant himself, "trimming operations" trim the edges off of a blank. Kohama clearly performs this function as seen in figure 2 (see trimmed piece 52). Appellant inexplicably refers to Kohama as a punch (a term not used by Kohama). Even if Kohama was a punch, a punch is still capable of trimming a blank.

**Claim 2**

Appellant notes that Kohama has a downstream bending station (8,9,32,36) and thus does not "reduce bending in the scrap". However, this bending does not occur at the trimming station (51,6,27,28) and thus is not relevant. Support element 27 reduces bending in the scrap, and the fact that the scrap is later bent on purpose does not change the fact that the support element (27) reduces bending in the scrap.

**Claim 3**

Appellant provides no new arguments.

**Claim 4**

Appellant provides no new arguments.

**Claim 12**

Appellant provides no new arguments.

**Claim 13**

Appellant provides no new arguments.

**Ground 2 - 102b – Madsen**

**Claim 1**

Appellant argues that Madsen is a puncher, as opposed to a trimmer. Similar to above, Appellant himself states that, "trimming operations" trim the edges off of a blank. Madsen clearly performs this function as seen in figure 3 (material outside of the die is trimmed off). Appellant calls Madsen a punch, which is technically correct, but it is the kind of punch that employs trimming blades.

Appellant argues that Madsen's scrap is bent during cutting, but Madsen's figure 2 clearly puts this falsehood to rest.

Appellant argues that a 0.01mm radius (inherent as taught by Hambli) is "non-existent". Of course, this is incorrect.

**Claim 2**

Appellant provides no new arguments.

**Claim 3**

Appellant provides no new arguments.

**Claim 12**

Appellant provides no new arguments.

**Claim 13**

Appellant provides no new arguments.

**Ground 3 - 103 – Kohama in view of Hambli**

**Claim 1**

Appellant provides no new arguments.

Nonetheless, Examiner would like to stress that Hambli shows not only that new dies have a radius (0.01mm) but that used dies have a radius (0.2mm), and that Kohama's knife modified to have a new radius (0.01mm) or Kohama's knife modified by time and wear (0.2mm) both would meet the recited claim limitations, as they would be "adapted to reduce defects" for certain (but not all) materials.

**Claim 2**

Appellant provides no new arguments.

**Claim 3**

Appellant provides no new arguments. It is noted that for this and many other arguments, Appellant did not even bother to change "102" to "103".

**Claim 4**

Appellant provides no new arguments.

**Claim 12**

Appellant provides no new arguments.

**Claim 13**

Appellant provides no new arguments.

**Ground 4 - 103 – Madsen in view of Hambli**

**Claim 1**

Appellant provides no new arguments.

**Claim 2**

Appellant provides no new arguments.

**Claim 3**

Appellant provides no new arguments.

**Claim 12**

Appellant provides no new arguments.

**Claim 13**

Appellant provides no new arguments.

**Ground 5 - 103 – Kohama in view of Bennett**

**Claim 1**

Appellant tries to make a point about his *moving* blade having a radius, as opposed to the radius being on the stationary blade. However, this point is meaningless, as only the relative motion between the two blades has any bearing on the quality of the cut.

Appellant argues that Bennett is a punch. This is true, but punches have opposed shearing edges, just like a trimming blade. One of ordinary skill in the art (a mechanical engineer with some years spent in industry) would be familiar with the different types of cutting blades (trim blades, punches, etc.) and realize that the teaching of one can apply to the other. On the scale of the shear plane, the effect is the same whether you are circular punching or linear shearing. Appellant notes that

Bennett is not concerned with "burrs" or "splinters", but is only concerned with making a smooth cut. Obviously, anyone concerned with a smooth cut would try to eliminate burrs and splinters, so Appellant's word games are unconvincing.

**Claim 2**

Appellant provides no new arguments.

**Claim 3**

Appellant provides no new arguments.

**Claim 4**

Appellant provides no new arguments.

**Claim 12**

Appellant provides no new arguments.

**Claim 13**

Appellant provides no new arguments.

**Ground 6 - 103 – Madsen in view of Bennett**

**Claim 1**

Appellant provides no new arguments.

**Claim 2**

Appellant provides no new arguments.

**Claim 3**

Appellant provides no new arguments.

**Claim 12**

Appellant provides no new arguments.

**Claim 13**

Appellant provides no new arguments.

**Ground 7 - 103 – Kohama in view of Li**

**Claim 1**

Appellant argues that Li suggests angling the workpiece, and therefor Li's teaching are not applicable to Kohama. It is true that Li finds angling the workpiece to sometimes be desirable. However, one of ordinary skill in the art would understand the relationship between blade radius and cut quality to be an issue separable from the workpiece angle. For example, Li states cuts can be made with the workpiece at a zero degree angle and shows the results for various blade radiuses in figure 10. For a sheet of 6022-T4, at a clearance of 20%, the cut quality *improves* with the larger blade radius. More particularly, for a 20% clearance, a 0.001" radius blade creates a burr height of 0.2mm, whereas a 0.002" radius blade creates a burr height of just 0.15mm. From this, it is clear that selecting certain blade radiuses produces desirable effects in some materials, even when cutting at zero degree angles.

Appellant argues that Kohama's support supports the blank, as opposed to the scrap. Examiner firstly notes that this argument is not germane to an apparatus claim. Kohama is *capable* of using the support to support the scrap in lieu of the blank. In as much as this argument bears on the method claim 12, Examiner notes that what one calls the blank and what one calls the scrap is a matter of viewer perspective. Two

different operators may want different things out of a workpiece, and each may call the other's desired product a "scrap".

**Claim 2**

Appellant provides no new arguments.

**Claim 3**

Appellant provides no new arguments.

**Claim 4**

Appellant provides no new arguments.

**Claim 12**

Appellant provides no new arguments.

**Claim 13**

Appellant provides no new arguments.

**Ground 8 - 103 – Madsen in view of Li**

**Claim 1**

Appellant provides no new arguments.

**Claim 2**

Appellant provides no new arguments.

**Claim 3**

Appellant provides no new arguments.

**Claim 12**

Appellant provides no new arguments.

**Claim 13**

Appellant provides no new arguments.

**Conclusion**

In summary, there are numerous teachings of a support elements (Kohama, Madsen, as well as other references of record, such as Warga, III (5,237,901), Kravets (4,569,263), Hirata et al. (4,679,473) and Zyl (3,842,699) and there are numerous teaching of a blade having a radius for shearing metal sheets for various reasons such as intrinsic manufacturing tolerances (Hambli's figure 10a), intentional for better quality cut (Li, Bennett) or worn by time and use (Hambli's figure 10b). The honorable board is encouraged to read all of these to better appreciate the level of ordinary skill in the art, and accordingly realize the obviousness of the rejection based upon the sum of knowledge.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

KENNETH E. PETERSON
PRIMARY EXAMINER

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